

Date: Wednesday, 12/27/2006 10:24:49 AM
 User: Eric Charbonneau

Process Sheet

Customer	CU-DAR001 Dart Helicopters Services	Drawing Name	AFT CROSSTUBE
Job Number	23964	Part Number	D2890
Estimate Number	10377	Drawing Number	D2890 REV B
P.O. Number	N/A	Project Number	N/A
This Issue	12/27/2006	S.O. No.	N/A
Prsht Rev.	NC	Drawing Revision	B
First Issue	11/14/2005	Type	PURCHASED PARTS
Previous Run	22534	Material	N/A
Written By		Due Date	6/2/2006
Checked & Approved By		Qty:	15
Comment	Est. D 05.03.21	Um:	Each
Removed Bending procedures KJ/JLM			

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description:
1.0	PG	PURCHASING
Comment: Setup: 0.00Hrs/ Run: 0.0000Hrs Total Run : 0.0000Hrs PURCHASING Issue P/O: 2008430		
a) Extrude as per Dwg D6008 length = 180" (Ref. D6008-180) b) Material: 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11) Seamless aluminum tube c) Minimum ultimate tensile strength = 77ksi d) Minimum tensile yield strength = 66ksi e) Material certification required		
2.0	D6008180	Crosstube extrusion
Comment: Qty.: 1.0000 Each(s)/Unit Total : 15.0000 Each(s) Aft Crosstube		
3.0	PACKAGING 1	PACKAGING RESOURCE #1
Comment: Setup: 0.00Hrs/ Run: 0.0000Min Total Run : 0.0000Hrs PACKAGING RESOURCE #1 Receive & Inspect For Transit Damage Ensure material certification is attached		
4.0	QC6	DIMENSIONAL CHECK
Comment: Setup: 0.00Hrs/ Run: 0.0000Hrs Total Run : 0.0000Hrs DIMENSIONAL CHECK Inspect dimensions as per Dwg D6008 and check 180" length		

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Drawing Name: AFT CROSSTUBE

Job Number: 23964

Part Number: D2890

Job Number:



Seq. #: Machine Or Operation:

Description :

5.0 HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: Setup: 0.00Hrs/ Run: 0.0000Min Total Run : 0.0000Hrs

HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

Inside and outside of tube

ML/JB/ST

06/12/29

6.0 QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: Setup: 0.00Hrs/ Run: 0.0000Hrs Total Run : 0.0000Hrs

INSPECT POWDER COAT/CHEMICAL CONVERSION

7.0 PACKAGING 1

PACKAGING RESOURCE #1



Comment: Setup: 0.00Hrs/ Run: 0.0000Min Total Run : 0.0000Hrs

PACKAGING RESOURCE #1

Identify and Stock

Location:

8.0

DC

DOCUMENT CONTROL



Comment: Setup: 0.00Hrs/ Run: 0.0000Hrs Total Run : 0.0000Hrs

DOCUMENT CONTROL

Inspection Level 21

Job Completion



already closed

DART AEROSPACE LTD	Work Order:	23964
Description: Aft Crosstube	Part Number:	D2890
Drawing: D2890 Rev. B; D6008 Rev. A	Qty:	15

Page 1 of 1

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveller Dwg not required	u	03.08.05	15
2	PG	Issue P/O: <u>2008430</u> a) Extrude as per Dwg D6008 length = 180" (Ref. D6008-180) b) Material: 7075-T6/T6511 (WW-T-700/7, or QQ-A-225/9 or QQ-A-200/11) Seamless aluminum tube c) Minimum ultimate tensile strength = 77ksi d) Minimum tensile yield strength = 66ksi e) Material certification required	u	03.08.05	15
3	RG	Receive and inspect for transit damage Ensure material certification attached	u	05/10/31	17
4	QC6	Inspect dimensions as per Dwg D6008 and check 180" length	u	21.12.27	17
5	FP	Acid etch and alodine as per QSI 005 4.1 Inside and outside of tube			
6	QC3	Inspect Acid etch and Alodine			
7	ST	Identify and stock			
8	AC	Cost / part: _____			
9	DC	Close W/O Inspect Level 21			

Rev	Date	Change	Revised By	Approved
A	99.05.31	New Issue, ECN 200	DM	
B	00.04.11	Remove painting step	EC	
C	02.10.18	Re-format; Added spec	KJ	
D	05.03.21	Removed Bending procedures	KJ/JLM	<i>JLM</i>

RELEASED
05.03.21

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

0000000000

Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Aug 04, 2005
03:24 pm

Work Order No	:	0023964	Department Code:
Project Name	:	D2890	Burden Flags : NNNNNNN
Project For	:	WK543	WO Status : Open
Work Order Type	:	Main	Invoice State : Not Invoiced
Main WO Number	:		Invoice Date :
House Part Number	:	D2890	Invoice Number :
Description	:	Aft Crosstube	Invoice Amount : 0.00
Manufactured	:	Yes	
Amount Req'd	:	15	
Amount Done	:	0	Order Entry No :
Start Date	:	08-04-05	OE Value : 0.00
Est Finish Date	:	10-29-05	
Act Finish Date	:		Est Margin : 0.000%
Drawings Reqd	:	No	Actual Margin : 0.000%
Ok for Approval	:		
Approval Rec'd	:		\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost	:	0.00	0.00	0.00	0.00
Engineering Hours	:	0.00	0.00	0.00	0.00
Engineering Cost	:	0.00	0.00	0.00	0.00
Production Hours	:	0.00	0.00	0.00	0.00
Production Cost	:	0.00	0.00	0.00	0.00
Packaging Hours	:	0.00	0.00	0.00	0.00
Packaging Cost	:	0.00	0.00	0.00	0.00
OverHead Hours	:	0.00	0.00	0.00	0.00
OverHead Cost	:	0.00	0.00	0.00	0.00
CNC Hours	:	0.00	0.00	0.00	0.00
CNC	:	0.00	0.00	0.00	0.00
Misc. Hours	:	0.00	0.00	0.00	0.00
Misc.	:	0.00	0.00	0.00	0.00
Burden	:	0.00	0.00	0.00	
Total Cost	:	0.00	0.00	0.00	
Margin	:	0.000	0.000		
Selling Cost	:	0.00	0.00		

	Estimated	Actual	
Labour Hrs/Amount Done	:	0.00	0.00
Profits/(Loss)	:	0.00	0.00



ALUnna

Abnahmeprüfzeugnis 3.1 - EN 10204:2004

Inspection Certificate 3.1 - EN 10204:2004 / Certificat de Reception 3.1- EN 10204:2004

Kunde: Dart Aerospace Ltd.

Client:

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada**Produkt:** Rohre nahtlos gepresstProduct / Produit: Tubes seamless extruded Tubes file sur algüille
AMS - QQ - A - 200/11E; Spezifikation D 6008**Zeugnisnummer:** 723/05

Cert No.: / No. du certificat:

Bestellnummer: 2008430

Order No. / No. de commande

Auftrag: 15301/8

Our Reference/Notre Reference:

Spezifikation:

Specification:

Werkstoff:

Alloy/Alliage:

Abmessung
Size / Dimension**Kennzeichnung**
Marking/Marquage:**Lieferung**

Delivered Material / Matériel délivré:

Zustand:

Temper/État

T 6511

7075
3,250 INCH x 2,374 INCH x 0,438 INCH x 180,000 INCH
Article: D6008-180 3.250" x 0.438" buff finishALUnna-Cert-No. 723/05-7075-16511-cast No. 79609-AMS-QQA-200/11E-3.250" Od x 0.438" Wall-Heat No. 85/09-
lot 15301/8-1P.O.2008430

pcs. lbs

17 1206

1. Chemische Analyse

Chemical Analysis / analyse chimique

Charge/ Cast No.	Si min.	Fe max.	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
79609	0,40	0,50	1,2	2,0	0,30	2,1	0,18	5,1					
	0,093	0,173	2,0	0,34	2,9	0,28	6,1	0,20					

Elements without indication < 0,01 %

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

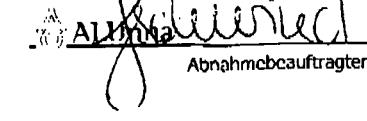
Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat No.
min.	77,0	66,0				
max.						
1	87,435	81,490	10,0		174	85/09 - 17 pcs.
2	87,580	81,635	10,0		176	

**Ergebnis der
Prüfungen:** Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht.**Test results:** We confirm that the delivery has been tested and applies to the agreements made on receipt of the order.**Resultats:** Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande.

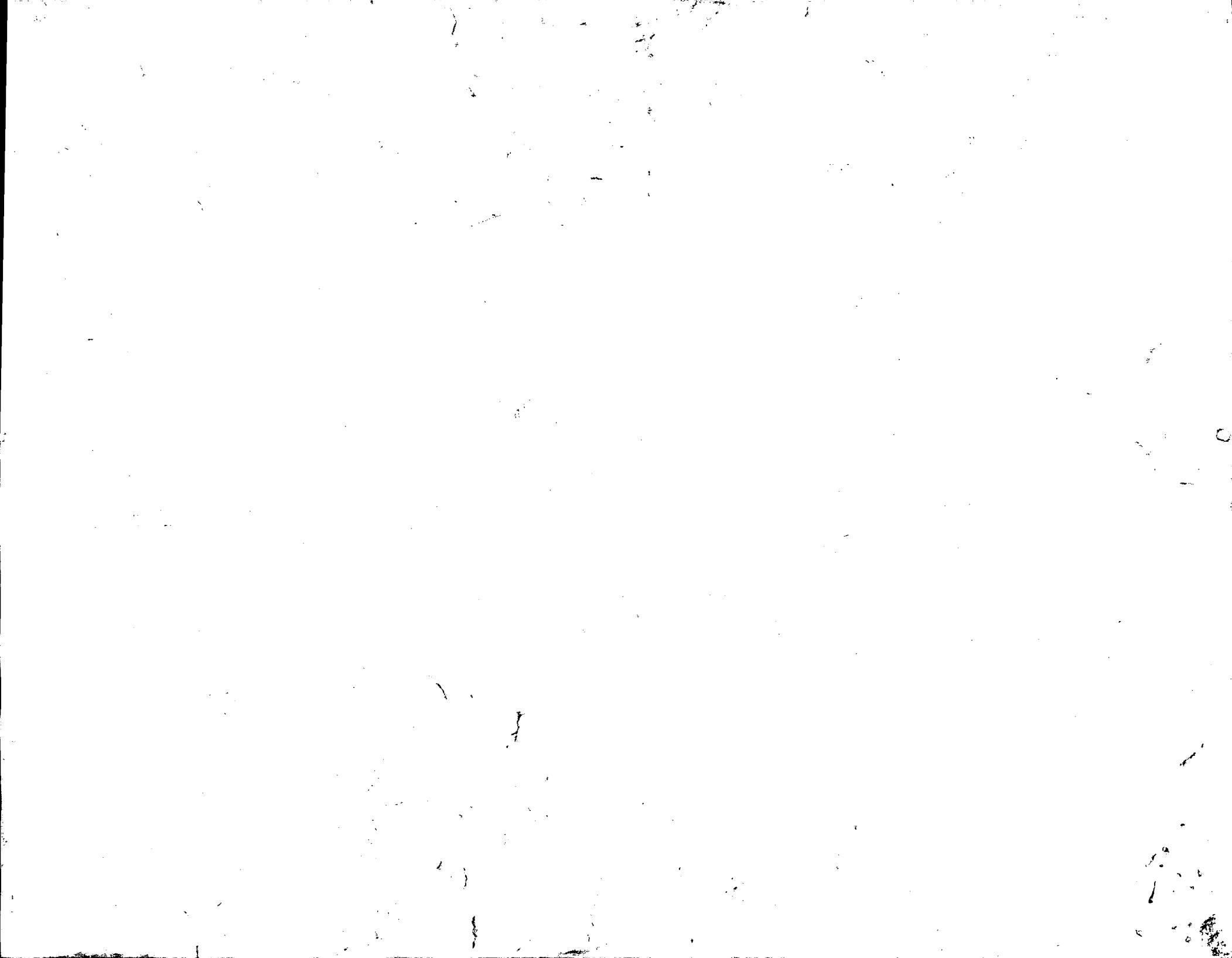
KroosD

Certified acc. to DIN EN ISO 9001:2000, valid until 2006-03-09
Certificate No.: 001959 QM

27.09.2005



Abnahmbeauftragter



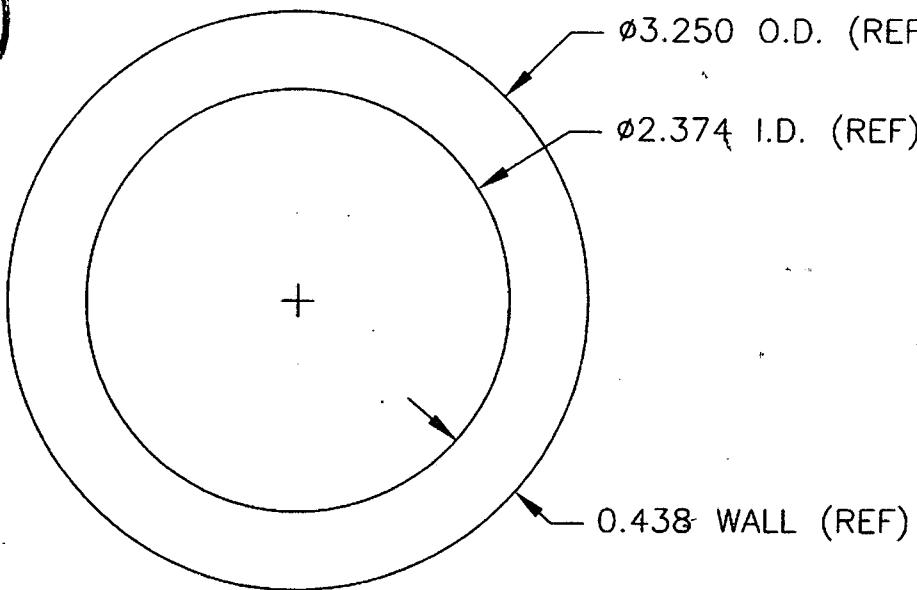


DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D6008
DATE		REV. A SHEET 1 OF 1
00.11.17		TITLE CROSSTUBE MATERIAL
A	00.11.17	SCALE 1:1
		NEW ISSUE

SPECIFICATION CONTROL DRAWING

RELEASED
00.11.24

REFERENCE ONLY



NOTES

1) D6008-XXX CROSSTUBE

LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 180" LONG TUBE: D6008-180

- 2) MATERIAL: 3.250 OD x 0.438 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:
OD: ± 0.008 MEAN (± 0.016 INCLUDING OVALITY)
WALL: ± 0.020 MEAN (± 0.044 INCLUDING ECCENTRICITY)
LENGTH: XXX $+0.125/-0.000$
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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